

## Bringing a Health Impact Assessment to the Question of Hydraulic Fracking in New York State—a talking points document

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### Background

A comprehensive Health Impact Assessment is a policy tool with a five necessary elements:

- It identifies the potential effects of a proposed activity on the health of a given population and describes the distribution of those effects within the population.
- It uses an array of data sources and analytical methods—both qualitative and quantitative—to evaluate the multiple, complex hazards and exposures created by the proposed activity.
- Its analysis includes a special emphasis on vulnerable subpopulations.
- It analyzes not only the causes of illness but also the conditions that affect health. (As identified by the World Health Organization, these conditions include personal behaviors as well as social and economic factors, the built environment, and the physical environment.)
- It recommends actions to minimize or eliminate the health effects so identified and assessed.

Two features of a comprehensive Health Impact Assessment distinguish it from other kinds of public health investigations. First, a Health Impact Assessment is **prospective**: it is done in advance of any decision to approve or prohibit the proposed activity. Second, a Health Impact Assessment is **democratic**: throughout the process, it includes elements of public participation in the form of hearings, public reviews, meetings, and stakeholder consultations. Concerns suggested by members of potentially affected communities are included in the scope of the study.

Beyond these hallmark characteristics, comprehensive Health Impact Assessments are flexible in the protocols that they can contain. Some include the extra step of providing an economic analysis of the identified health effects, but this is not required. Likewise, formal risk assessment may be included but is not mandated. There is considerable latitude in how uncertainty is to be treated in the analysis: guidelines provided by the National Research Council stipulate only that uncertainty may not be zeroed out as a “no effect” default.

Importantly, the goal of a Health Impact Assessment is “not to determine if a project is approved, but to ensure that adverse effects are minimized.” In other words, by

definition, an HIA must precede the roll-out of a proposed activity, but its results are not necessarily determinative of the decision to roll it out or not. But they could be made to be so.

### **Risk Factors from Fracking: Multiple in Number, Large in Magnitude, Long-lasting in Duration, Possibly Irreparable**

Shale gas extraction via horizontal hydraulic fracking is an inherently dangerous activity.

Fracking relies upon, and releases from the earth, large amounts of inherently toxic chemicals, including known carcinogens, while also transforming the natural and built environments of human communities. Fracking's risks to public health arise from every stage of the gas extraction process—from the clearing of land for well pads to the disposal of toxic wastewater—and may affect not only disease rates but also the fundamental conditions for human health. For example, with the onset of drilling and fracking operations, a community may experience dramatic increases in noise pollution, light at night, crime, and truck traffic, along with decreases in the availability of locally grown food, affordable housing, and recreational green space for exercise. All of these changes have health consequences: e.g. exposure to light at night demonstrably raises the risk of breast cancer.

Case studies and individual reports from other states provide credible evidence of public health risks in communities located near drilling and fracking operations. Although these risks have been acknowledged, no comprehensive assessment has yet been conducted. Many of these areas are not as densely settled as New York, the nation's third most populous state. Small upticks in mortality and disease rates in a state with 19.5 million inhabitants have much larger consequences and carry much bigger costs than equivalent effects in, for example, western Wyoming or eastern Utah.

Furthermore, some of the risks posed by fracking may not be minimize-able through any known mitigation strategy. Unmapped, abandoned wells that could potentially serve as portals for drinking water contamination cannot be easily located and remediated. Cement well casings, however well poured, may not be able to withstand the repeated explosions and intense pressures of fracking. Cement cannot be made immortal. If well casings do not provide a permanent, unbreachable seal between drinking water aquifers and the volatile hydrocarbons trapped in shale bedrock and mobilized during fracking operations, then irreparable problems may await future generations.

### **Key Elements of a Health Impact Assessment of Hydraulic Fracking in New York State**

Critical and prerequisite factors of success include these:

- 1) The supplemental generic environmental impact statement cannot be finalized until the HIA is finalized.**
- 2) The HIA must be participatory.** The public, especially members of targeted communities, must be engaged at every stage of the HIA, including the scoping process.
- 3) The HIA must be quantitative.** In particular, it must apply quantitative techniques to estimate increases in traffic fatalities and injuries, as well as the health effects from noise pollution (linked to cognitive deficits in children; heart attack and increased blood pressure in adults) and air pollution from drill rigs, trucks, condensers, compressors, and flare stacks (linked to heart attack, stroke, lung cancer, and diabetes among adults; asthma among children; and preterm birth, and reduced birth size among infants.) Protocols for estimating morbidities and mortalities for all these parameters exist.
- 4) The HIA must consider health risks from cumulative impacts and across the entire life cycle of shale gas extraction and transport.** This includes radon exposure from pipelines and in homes and apartments at the point of combustion.
- 5) The HIA must examine the public health consequences of fracking's socio-economic impacts.** These include demonstratable changes in rates of crime, drunk driving, drug arrests, sexual assault, incidence of teenage pregnancy, and sexually transmitted disease. These include loss of rental housing for low-income families.
- 6) The HIA must examine the public health consequences of altered land use patterns and land disturbance.** Loss of farmland decreases access to fresh, local food. Loss of such access is, in turn, linked to obesity. Land disturbance increases sedimentation of surface streams, which, when subsequently chlorinated for drinking water, increases the burden of exposure to disinfection byproducts. These byproducts include trihalomethanes, exposure to which is linked to colon and bladder cancers.
- 7) The HIA must focus closely on infants, children, and pregnant women as vulnerable subpopulations.** Fracking chemicals and fracking-related air pollutants include several reproductive and developmental toxicants. These substances, which have no known safe thresholds of exposure, can, when exposure occurs during prenatal or early life, abort pregnancies or sabotage pathways of child development. Consequences may be life-long.
- 8) The HIA must examine occupational health risks to workers.** These include, but are not limited to, head injuries, traffic accidents, blunt trauma, silica dust exposure, and chemical exposures.
- 9) The HIA investigators must aggressively seek out data and consult with independent experts from multiple disciplines.**
- 10) The HIA must assess the total health-related economic costs of fracking.** It is possible and necessary to put a price tag on the medical costs of increased disease rates

and injuries. All quantifiable health effects should be monetized using an economic disbenefit analysis.

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